

Office Of Environmental Control  
Office Of The Governor  
550 Halekauwila Street  
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Honolulu, Hawaii 96813

**FINAL**  
**ENVIRONMENTAL STATEMENT**

**PREVENTION AND MITIGATION  
OF SHORE DAMAGES**

**KAHULUI HARBOR, MAUI**

**Prepared by**

**DEPARTMENT OF THE ARMY  
Pacific Ocean Division, Corps of Engineers  
Building 96, Fort Armstrong  
Honolulu, Hawaii 96813**

**16 April 1973**

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PREVENTION AND MITIGATION  
OF SHORE DAMAGES  
KAHULUI HARBOR, MAUI

( ) Draft

(X) Final Environmental Statement

Responsible Office: US Army Engineer Division, Pacific Ocean

1. Name of Action: (X) Administrative ( ) Legislative

2. Description of Action: The proposed plan for shoreline protection and beach restoration consists of the construction of about 760 feet of revetment along Kahului Beach Road, the placement of about 11,000 cubic yards of sand along the southern shoreline of Kahului Harbor, and construction of one groin extension, two new groins, and one breakwater to protect the sand placement.

3a. Environmental Impacts: Impacts related to the construction period include some turbidity of the water, disturbance to fish and marine life, and some interference with recreational activities. The revetment will prevent further erosion of the western shoreline and maintain continued, safe use of Kahului Beach Road. The sand placement and protective structures will result in increased beach area and consequently, greater recreational use along the southern shore.

b. Adverse Environmental Effects Which Cannot Be Avoided: No long-term adverse effects are anticipated. Disturbances to the environment during construction which are unavoidable will be minimized through the construction specifications.

4. Alternatives: Alternatives considered include no-action, shoreline protection only, construction of protective structures and beach restoration, and a combination of these.

5. Comments Received:

U.S. Coast Guard  
U.S. Department of Commerce  
U.S. Department of the Interior  
U.S. Environmental Protection Agency  
U.S. Department of Health, Education, and Welfare  
U.S. Department of Transportation  
Office of Environmental Quality Control  
(Clearinghouse for State and County agencies)

6. Draft Statement to CEQ 28 September 1973.  
Final Statement to CEQ 23 November 1973.

PREVENTION AND MITIGATION  
OF SHORE DAMAGES  
KAHULUI HARBOR, MAUI

1. PROJECT DESCRIPTION.

The proposed plan of improvement for the southwest shoreline of Kahului Harbor, Maui was developed at the request of and in cooperation with the State of Hawaii. The study has been conducted under the authority of Section 111 of the River and Harbor Act of 1968 (Public Law 90-483, approved 13 August 1968) which states that:

"The Secretary of the Army, acting through the Chief of Engineers is authorized to investigate, study, and construct projects for the prevention or mitigation of shore damages attributable to Federal navigation works. The cost of installing, operating, and maintaining such projects shall be borne entirely by the United States. . ."

Between 1904 and 1962, many improvements were made to the harbor by both Federal and non-Federal interests. There is evidence that some erosion occurred during this period, although there were no reports of serious damage. In 1962, enlargement of the harbor to its present size of 2,400 feet long by 2,050 feet wide was completed. Since this action, erosion of the south and west shores accelerated, prompting requests for assistance in 1964. Engineering studies show that the recent severe erosion is directly related to the harbor enlargement. Waves now break closer to the shoreline, thereby allowing more energy to be absorbed by shoreline barriers.

The proposed plan of improvement (plate 1) provides both shoreline protection and beach restoration. The significant features of the plan include:

- a. 380 feet of new revetment along the Kahului Beach Road;
- b. 380 feet of existing revetment to be rehabilitated;
- c. 90-foot connecting groin between proposed revetment and existing storm-drain groin;
- d. A 100-linear foot breakwater extending from the west end of the old LST landing;
- e. A 125-foot groin extending from the east end of the LST landing plus extensive reshaping of a 135-foot shoreward segment, creating a groin 260 feet in length;
- f. A 100-foot extension to the existing groin located east of the LST landing, with minor reshaping of the existing groin;

g. Total placement of 11,000 cubic yards of sand as indicated in plate 1.

The revetment sections will consist of two layers of armor stone, two layers of underlayer stone, and compacted fill that has been lined with plastic filter cloth. The slope of the revetment will be 1 vertical on 1.5 horizontal. The revetment will be tapered at both ends to achieve a smooth transition to the existing shoreline.

The groins are to be constructed of 1 layer of 5 to 6 ton stones over core material. To prevent the loss of core material, an underlayer will be placed between them. The top of the groin will be at elevation +7.0 feet at the shoreward end and gradually taper to +1.0 foot at the seaward end. The top width will be 14 feet, and the bottom widths vary from 30 to 50 feet.

In addition to the 11,000 cubic yards of sand, a total of 15,000 cubic yards of rock of assorted sizes and tonnage are required for the proposed project and will be obtained from local commercial sources.

The restored beach area will have an average dry beach width of 40 feet with a slope of 1 vertical on 10 horizontal above 0-foot MLLW. Below elevation 0-foot MLLW, the slope will be 1 vertical on 20 horizontal. Clean natural sand either from a dune or beach source will be used. The sand placement will result in a total dry beach area of 32,500 square feet.

The project proposals will be located on State-owned lands, although easements and rights-of-way for construction and maintenance operations must be obtained from the owner of the private lands along the harbor's south shore.

Plans and specifications will be initiated upon approval of the detailed project report. Construction is anticipated in FY 75, depending upon availability of funds.

## 2. ENVIRONMENTAL SETTING WITHOUT THE PROJECT.

The island of Maui is the second largest in the State with an area of 728 square miles and a 1970 population of approximately 38,700. It is of volcanic origin and consists of two major volcanic cones, the East Maui cone or Haleakala volcano and the West Maui volcano. Kahului Harbor is located in Kahului Bay on the north side of the isthmus which separates the two volcanic cones (plate 2).

The entire harbor complex is surrounded by the town of Kahului, which had an estimated population of 2,900 in 1970. Approximately 2 miles west of Kahului is the town of Wailuku, the county seat. Commercial activity for the island is centered around the Wailuku-Kahului area. The major industries of Maui are sugar, pineapple, and tourism.

Kahului Harbor is the only deepwater port on Maui, as well as the only existing Federal navigation project on the island. Some 1 million tons of

waterborne commerce passed through the harbor in 1970. Facilities for handling of cargo include Pier 1 and Pier 2. Pier 1 is located on the northeasterly side of the harbor and Pier 2 is parallel to and situated about 800 feet southwest of Pier 1. The harbor structures consist of a 600-foot-wide entrance channel; two breakwaters on the east and west side of the entrance channel, 2,766 and 2,315 feet in length, respectively; and a harbor basin 2,050 feet wide, 2,400 feet long, and 35 feet deep. Repair work on the west breakwater to remedy damages incurred during a storm in November 1970 was completed in May 1973.

Adjoining the west breakwater at its base is a coral fill area that is to be developed into a park by the Maui Junior Chamber of Commerce and the County of Maui. The Master Design of the park, prepared by the Maui County Planning Department, includes picnicking areas, model airplane and kite flying areas, a boat landing and launching ramp, comfort stations, a tot lot, parking areas, and a protected swimming area. Construction of the park will be done in stages, with initiation of the first increment planned for January 1973.

The Kahului Beach Road rims the western shore of the bay and is a major segment of Federal-Aid Secondary Route 340 on the Island of Maui. Existing revetment along the southwest portion of the shoreline was constructed by the State between 1964 and 1968. Since 1959, about 50 feet of beach was lost prior to construction of the revetment. The 1959 shoreline date is the most recent and reliable source depicting pre-enlargement (prior to 1962) conditions. Recent Federal Highways Administration maintenance inspection of the Kahului-Waiehu Beach Road confirmed shore erosion along segments of the shoreline adjacent to the highway.

The south central shoreline is lined by three different hotel developments built on privately-owned lands. A 48-inch storm drain line is located at the end of the roadway revetment, and plans have been made by a private developer to replace it with a new 72-inch line. The increase in capacity is designed to provide a larger storm drain system for the surrounding areas and the new Kaahumanu Shopping Center. The developer's plans include catch basins to minimize the amount of suspended solids and floatables, and in a report approved by the State of Hawaii, it was concluded that the enlarged storm drain line will have no significant impact upon the environment beyond the existing conditions. From the end of the existing roadway revetment to a scattered rockpile which once served as an LST landing, there is a narrow beach fronting the Maui Beach Hotel. There is evidence of about 20 feet of accretion at the west end of this beach and about 50 feet of erosion at its eastern end.

No change in the shoreline has occurred in front of the old World War II LST landing. East of the LST landing, about 40 feet of beach has been lost from the area in front of the Maui Palms Hotel and the Hukilau Hotel. Since 1959, about 10,600 cubic yards of sand has been lost in this area, and severe erosion prompted the State Harbors Division to construct

revetment of the hotel property lands in 1969. The revetment ends with a groin built at the same time. About 4,000 cubic yards of sand obtained from the west side of Pier 2 was placed in front of the revetment. From this eastern groin to Pier 2, there has been no significant loss of beach sand and, in fact, the eastern half has accreted about 100 feet since 1959.

Kahului Harbor is exposed to the prevailing winds and waves from the north and northeast directions. Tradewinds from this quadrant prevail more than 75 percent of the time. Sustained wind velocities, ranging between 25 and 31 miles per hour, have been recorded one-third of the time. These trade-winds generate swells which incessantly attack the breakwaters. On many occasions, intense northerly storms generate high waves which attack the breakwaters.

The range of tide between mean lower low water and mean higher high water is 2.3 feet and the extreme tidal range is 4.8 feet. Currents outside the Kahului Harbor breakwaters are predominantly east to west and northward along the coast. Inside the harbor, clockwise current prevails during flood tide; counterclockwise current during ebb tide. The near shore currents along the west shore shows no definite pattern, but the south and southeast currents appear to be generally eastward as evidenced by accretion at Pier 2. Except in the dredged areas of the harbor, the water is relatively shallow with an average depth of about 10 feet.

The harbor bottom area is a portion of a fringing coralline platform or marine shelf which is predominantly calcareous and rests on lava flows. The landward portion was constructed on cemented beach rock and volcanic boulders and cobbles (beach rubble). The seaward portion was constructed on clastic marine sediments which forms a gradual seaward dipping terrace. The sediments range from silt to boulder (coral heads) in size and are mostly coral limestone fragments (algae, mollusk, and foraminifera). The size of the marine fragments decreases seaward.

The project area is underlain by a light gray-buff, fine-grained 50 percent mixture of calcareous and basaltic sand to an unknown depth. A 1-foot-thick mantle composed of gravel to boulder sized material overlies the western portion of the beach between the present coral fill area and the end of the present rock revetment along the Kahului Beach Road. Kahului Beach itself is undergoing active marine erosion chiefly by longshore currents and storm waves. Sand is being transported from west to east and is deposited on the lee side of Pier 2.

The Kahului Harbor area is used by sport fishermen, particularly along the breakwater and piers. Makiawa, akule, hahalalu, manini, aholehole, awa, papio, mullet, and halfbeaks are found in the harbor. Surfing, swimming along the south shore, and some snorkeling are also popular activities within the protected harbor areas. According to the 1971 Statewide Surfing Site Survey, there are four surfing sites within the harbor area, (see plate 1), as well as three sites outside the east breakwater, and four sites north of the west breakwater. Surfing surveys have indicated excellent surfing conditions during the winter months. The surveys are evaluations of potential surfing areas, and actual use has not been verified.

Two sewer outfalls terminate in Kahului Bay outside of the harbor proper. Wastes from the Maui Pineapple Company cannery are discharged through both sewer outfalls. The Wailuku sewer outfall, servicing the town of Wailuku, discharges sewage approximately 1,500 feet north of the west breakwater. The major portion of contamination from the Wailuku outfall is carried away by a rip current that moves seaward from the west breakwater cove, just north of the land fill area. It appears that sewage pollutants from this outfall do not reach the harbor entrance although high coliform levels have been noted within the cove. Although recent State Department of Health sampling has indicated high nitrogen levels inside the west breakwater, this may be due to seepage through the west breakwater or to contamination from the Kahului outfall. Sampling along the southern shoreline within the harbor indicates that the waters are suitable for water-contact activity.

The Kahului sewer outfall is located at the base of the east breakwater. Most of the pollution from this outfall emerges at or near the surface and is carried northwestward. During flood tide, some of the diluted sewage is carried into the harbor although the major portion is carried seaward by the prevailing coastal current and by the rip current from the west breakwater cove. The Kahului outfall has been identified by the Herschler and Randolph Report (1962) to the State Department of Health on pollution in Kahului Bay as the principal source of pollution in the area. Maui County, with the assistance of the U. S. Environmental Protection Agency, is planning to eliminate both ocean outfalls by consolidating the wastes from Kahului and Wailuku, providing secondary treatment, and finally discharging the effluent to underground wells. An environmental impact statement is currently being prepared for the project.

### 3. ENVIRONMENTAL IMPACT OF THE PROPOSED PROJECT.

Among the impacts on the natural environment are permanent effects of the project and temporary effects related to the construction period and activities. The construction of the revetment and groins will require some minor excavation and placement of rocks. Some turbidity of the waters can be expected, although the effects should not be significant since the structures are to be built immediately adjacent to or near the shore in a basically rock and sand type substrate. The turbidity caused by the construction activities may also affect the surfing, swimming, and snorkeling activities in the harbor, and some inconveniences and interruption of use of the beach areas during the construction period is unavoidable.

The construction activity can also be expected to cause some disturbance to fish and other marine life in the immediate area. Fish would probably move away from the construction area temporarily. Sessile organisms such as urchins and anemones and benthic organisms such as crabs and shrimps may be killed or chased away although repopulation is expected upon completion of the project.

Kahului Harbor lies within a fishing area (Makalele Point to Pauwela) that is frequented by about 30 percent of the total inshore fishermen on Maui.<sup>1/</sup>

<sup>1/</sup> Hoffman, Robert G., and Hiroshi Yamauchi, Recreational Fishing, Its Impact on State and Local Economies, College of Tropical Agriculture, University of Hawaii, Departmental Paper 3, August 1972.

The extent of fishing in the harbor varies with seasonal abundance of the fish. Within the harbor, the waters along the breakwaters and piers are the most extensively used. The construction work is located away from these popular fishing areas and should not directly interfere with the fishing spots. Dispersion and movement of the temporarily turbid waters may indirectly affect fish outside the immediate construction areas. The entire construction period will last for approximately 10 months and adverse impact upon fishing should not persist beyond the construction period.

The existing 48-inch storm drain line which carries storm water runoff to the harbor will be enlarged to 72 inches as described earlier. During the early runoff period of a rainstorm, the area immediately adjacent to the storm drain entry point is most significantly affected by terrestrial pollutants and changes in salinity and temperature from increased fresh water flow. Following the storm and subsequent to mixing in the harbor waters, the effect of pollutants, both nutrients and solids, would be considerably reduced.<sup>1/</sup> These conditions, as well as accumulation of solids along the bottom and shoreline during storms, occur at the present time. Littering of these areas will probably continue with the drain enlargement, although the enlargement work includes structures for reduction of suspended solids and floatables. Dissolved materials will continue to be discharged to the harbor during storms. The proposed sand fill near the Maui Beach Hotel, in particular, may be affected. According to National Weather Service data, rainfall in the Kahului vicinity is relatively light (below 20 inches annually), with several winter storms accounting for most of the total annual rainfall. Thus, adverse effects, will be most pronounced during the generally infrequent storm conditions, as they are at the present time.

The proposed project will have permanent effects upon the natural conditions in terms of its intended functions. The revetment along Kahului Beach Road will protect the existing shoreline and prevent further erosion which may threaten the roadway. The construction of a connecting groin which will tie into the existing storm drain in front of the Maui Beach Hotel is planned to allow it to intercept wave-generated currents that are expected to move south along the proposed roadway revetment. The proposed groin will prevent these currents from entering the widened beach area and removing the sand. Further protection from littoral currents and waves will be provided by the breakwater to be built from the west end of the LST landing. For the section between the LST landing and the existing eastern groin, two modifications are planned. First, the groin to be built at the east end of the LST landing will trap any sand that is being transported by a current that moves in a westward direction in the area. Second, the extension of the eastern groin is designed to trap the littoral transport of sand which is predominantly to the east. After the area adjacent to the west side of

1/ Bathen, Karl H., and Arthur G. Cropper, Environmental Considerations Pertinent to Storm Runoff from the Maui Regional Shopping Center and Surrounding Area into Kahului Harbor, April, 1972.

this groin fills, sand should move around this groin and onto the beach area to the east.

The placement of about 1,000 cubic yards of sand in front of the Maui Beach Hotel and about 10,000 cubic yards of sand between the LST landing and the existing eastern groin will result in increased beach width and consequently, restoration of the recreational use of the shoreline. The total dry beach area (including existing beach area) in front the Maui Beach Hotel will be about 8,500 square feet, and about 24,000 square feet for the area east of the LST landing.

Five potential sources of beach sand were investigated to provide the approximately 11,000 cubic yards of sand required for this project. Dune sand is available at two sites within 2 miles of Kahului Harbor. A limited supply of beach sand is located about 8 miles away near Kealia Pond. A fine-grained sand similar in detail to the present sand at the project site is being deposited by long shore currents on the lee side of Pier 2, Kahului Harbor. A final source is beach sand at Sprecklesville about 1 mile east of the Kahului Airport on State-owned lands. Based on visual examination and the results of gradation analysis on sand samples from all five sources, the Sprecklesville source contains the best quality sand for the intended purpose. Sands from all other sources are considered too fine for use as beach sand. A special permit to remove sand from this source will be required from the Department of Land and Natural Resources, State of Hawaii.

The Sprecklesville site is the back shore portion of the beach and is moderately overgrown with Casuarina pine and salt brush vegetation. The State has used about 5,000 cubic yards for construction of airfield concrete pavement, and about 50,000 cubic yards has been estimated in place at the site. A final determination of the source site, subject to permit procedures, will be made during the plans and specifications stage prior to construction.

The revetment, groins, and sand placement will alter the visual appearance of the existing south and southwest shoreline in Kahului Harbor. Structural alterations have been kept to a minimum in an effort to fulfill the purpose of mitigating those damages caused by the 1962 harbor enlargement and restoring the shoreline as nearly as possible to the pre-enlargement conditions. The proposed Kahului Beach Road revetment is an upgrading of existing revetment and extension of it. The construction of the groins involve extensions of existing groins or rock-type structures. The shoreward ends of the groins will be slightly higher than the existing structures, and the seaward end will be at +1.0 foot MLLW.

Over the life of the project, repairs to the protective structures and some replenishment of the sand may be necessary. Although the proposed project is designed to provide adequate protection for the restored beach areas, some sand may be lost during extremely adverse weather conditions. A continuing maintenance program will assure that the shoreline will be protected from erosion and that its recreational use will not be impaired.

Based on an average annual sand loss rate estimated at 300 cubic yards, maintenance operations would require the placement of about 3,000 cubic yards of sand every 10 years. In addition, maintenance of the rock structures would require replacement of about 1,000 cubic yards of stones every 10 years. The maintenance operations should consist only of replacement of initially constructed features, should not involve extended or intensive construction work, and should not result in adverse or long-term impacts upon the environment.

The State Liaison Officer for Historic Preservation was contacted on 21 February 1973, and he stated that the proposed project would not adversely affect any historical or archaeological resources in the vicinity. No adverse impact upon Kanaha Pond, a registered National Natural Landmark, is anticipated. No permanent effects upon surfing sites within the harbor are expected to be caused by the proposed project. The rock structures and sand fill will cover about 140,000 square feet of existing rock and sand substrate which would temporarily limit the use of these submerged areas by marine organisms. It is likely that the completed revetment and groin structures will provide additional habitat for marine life and that repopulation of those types of organisms lost on the sand and gravel substrate during construction will occur.

4. ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED SHOULD THE PROJECT BE IMPLEMENTED.

Other than the temporary adverse effects associated with the construction period, no other short- or long-term adverse effects are anticipated. Unavoidable construction effects such as turbidity of the waters, inconveniences to the public, noise and dust will be minimized to some extent through the construction specifications.

5. ALTERNATIVES TO THE PROPOSED ACTION.

Nonstructural methods such as doing nothing or implementing zoning and building codes to control development in the problem area were considered for the Kahului Harbor erosion problem and rejected for the following reasons. First, they would not meet the objectives of the project to prevent and mitigate shore damages attributable to Federal navigation works. Eventual undermining of the Kahului Beach Road and the loss of valuable beach land can be expected if no action is taken. Second, the lands adjacent to the shoreline are already extensively developed. While new development might be controlled by building and zoning controls, the existing roadway and development would continue to be threatened.

Alternative plans considered during the formulation of the proposed plan ranged from shoreline protection only to construction of protective structures and beach restoration or a combination of these. The initial request for Federal assistance resulted in a plan for about 1,000 linear feet of stone revetment along the Kahului Beach Road. Further study led to an expansion of the project to include beach restoration. Sand replenishment alone would necessitate frequent and expensive maintenance operations, and protective structures for the replenished beach was incorporated into the planning.

A preliminary plan which provided for revetment of Kahului Beach Road, beach restoration for the narrow beach between the LST landing and the existing eastern groin, and protective structures was initially coordinated with local governmental agencies and interested citizen groups. The plan was generally supported by those contacted although objections were raised about the revetment of small existing beach located between the storm drain near the Maui Beach Hotel and the LST landing. An analysis of aerial photos revealed that a sand beach did exist in this location prior to the harbor enlargement, and the preliminary plan was again expanded to include beach restoration and protection for this section of shoreline.

The development of alternate plans was guided and limited by the specific nature of the authority under which this study has been conducted, that is, the prevention and mitigation of damages attributable to a Federally executed navigation project. One alternative considered at the request of Maui residents was the creation of additional sand beach to replace the existing LST landing. This request can be accomplished by strengthening and rebuilding the outer perimeter of the LST landing to serve as an offshore breakwater and connecting it to the proposed groins at either end. The nearshore area would be cleared of scattered rocks and debris so that sand could be placed along the entire length. Although construction of this additional beach is feasible, major erosion damage to the LST landing area is not evident. Any proposal dealing with creation of new beach land in the LST area is beyond the scope of this authority.

6. THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF MAN'S ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY.

The preventive and mitigative measures proposed for this project will assure that the present uses of the Kahului shoreline will be protected from further erosion. These uses include transportation on the Kahului Beach Road, hotel-resort development along the south central shore, and some park land near Pier 2. No adverse effects on the long-term productivity of the site in terms of recreational, navigational, or fish and wildlife usage will result from the revetment, groin construction, and beach replenishment.

7. ANY IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES WHICH WOULD BE INVOLVED IN THE PROPOSED ACTION SHOULD IT BE IMPLEMENTED.

The proposed project will require the initial commitment of about 11,000 cubic yards of sand for the beach restoration work. About 15,000 cubic yards of armor stone of varying sizes will also be needed. Maintenance operations will require an estimated 3,000 cubic yards of sand and 1,000 cubic yards of armor stone every 10 years.

## 8. COORDINATION WITH OTHERS.

a. Public Participation. A public meeting was held in Kahului on 19 October 1972. The proposed plan was discussed and a summary of environmental considerations presented. Those present expressed a deep concern for the preservation of sandy beaches and confirmed that the shoreline has eroded since 1962 and needs repair. There was no direct opposition to the concept of prevention and mitigation of damages, however; several speakers questioned the adequacy of the data upon which the proposed plan is based. They further requested that the scope of the project be expanded to include creation of additional beach land in the area of the LST landing. This matter is discussed in the alternatives section. The greatest support for the project came from the hotel operators along the south central shore who cited the advantages that a well-maintained beach area would bring to visitors and to residents of Kahului, as well.

b. Governmental Agencies. The draft environmental statement was circulated to the following governmental agencies for their review and comments. Their responses are summarized, and copies of their replies are attached to this environmental statement.

### FEDERAL AGENCIES

#### (1) U.S. DEPARTMENT OF TRANSPORTATION, U.S. COAST GUARD

No comments to offer on the statement.

#### (2) U.S. DEPARTMENT OF COMMERCE

Comment: A discussion of the potential effects of the enlarged storm drain runoff on the proposed project and the conditions that will exist if the project is implemented should be included.

Response: The Impact Section has been expanded to include this discussion.

Comment: The magnitude of the use of the project area by sport fishermen should be quantified, additional evidence should be presented to support the conclusion that the popular fishing areas will not be directly affected by the proposed project, and discussion of the likelihood that the popular sport fishing areas will be indirectly affected by this project should be included.

Response: Additional discussion of recreational fishing and anticipated impacts have been included in the Impact Section.

Comment : Some discussion of the expected frequency and magnitude of the maintenance actions and some indication of their effect on the re-establishment of the benthic organisms in the area should be provided

Response: The statement has been revised to include this discussion.

(3) U.S. DEPARTMENT OF THE INTERIOR

Comment: The statement should indicate the source of beach restoration sand and describe the impact its removal will have on the environment.

Response: The statement has been revised to include this discussion.

Comment: The marine environment that will be destroyed by filling must be adequately assessed.

Response: The area of rock and gravel substrate affected has been quantified and the anticipated impact discussed in the final statement.

Comment: The final statement should document contact with the State Liaison Officer for Historic Preservation. A statement on the effect the project may have on Kanaha Pond, a Registered National Natural Landmark should be included.

Response: The final statement has been revised accordingly.

(4) U.S. ENVIRONMENTAL PROTECTION AGENCY

Comment: The statement appears to adequately assess the environmental impacts of the proposed project.

(5) U.S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE

Comment: No comments to offer on the proposed project.

(6) U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION

Comment: Recent FHWA inspection of the Kahului-Waiehu Beach Road confirms shore erosion in the project area, and the proposed revetment should preclude the future possibility of highway damage due to continued shoreline erosion.

Comment: All work performed along Kahului Beach Road should be coordinated with the Highways Division, Hawaii Department of Transportation.

Response: The Highways Division has been consulted during the early planning phases and coordination will continue through construction.

STATE AGENCIES

(1) OFFICE OF ENVIRONMENTAL QUALITY CONTROL

No comments to offer on the statement.

(2) DEPARTMENT OF AGRICULTURE

Comment: The Department has reviewed the statement and foresees no adverse environmental effects on agriculture.

(3) DEPARTMENT OF HEALTH

Comment: The Department does not anticipate any abnormal problems relating to the construction activity. Noise should be minimized by establishing work hours during the period from 6 a.m. to 6 p.m., and all activities should be conducted following health regulations relating to the workers. All solid waste and spoil material generated from site preparation and construction should be removed and disposed of at an approved disposal site. Dust control measures to curtail fugitive dust emissions which may affect the hotels and residents adjacent to the project area should be enforced. Finally, special precautions should be taken to minimize the degree of turbidity caused by construction. Waste water treatment facilities should be implemented if required.

Response: Measures to assure that all construction activities comply with State and Federal pollution regulations will be detailed in the Environmental Protection Section of the contract specifications.

(4) DEPARTMENT OF TRANSPORTATION

Comment: The Department supports the proposed plan to prevent and mitigate shoreline damages in Kahului Harbor.

(5) DEPARTMENT OF PLANNING AND ECONOMIC DEVELOPMENT

Comment: The provision of adequate public access to the improved shoreline and sandy beach area as well as availability of parking spaces for beach users should be addressed.

Response: As described in the draft statement, this project has been developed under a specific authority which provides for prevention and mitigation of shore damages attributable to Federal navigation works. Therefore, the scope of the proposed work is basically to restore the area as nearly as possible to the harbor pre-enlargement conditions. The beach restoration portion is an "improvement" over existing conditions, but only in the mitigative sense. Access is available at either end of the project area; from the Kahului Beach Road vicinity and from the Alexander and Baldwin Park at the east end which is open to the public. Provision of direct access through hotel property and availability of parking spaces should be addressed by the State or County, if the need arises.

Comment: Continued consideration and concern for the highest possible water quality is suggested.

Response: Other than the temporary degradation of water quality during the construction period which is recognized in the environmental statement, no long-term effects upon water quality are expected to result from the completion of the proposed works. Construction measures will be fully examined during the plans and specifications stage and incorporated into the contract work.

(6) DEPARTMENT OF LAND AND NATURAL RESOURCES

Comment: The Department notes that the project will enhance shore fishing and swimming opportunities in the harbor and has no objections to the proposed project.

COUNTY OF MAUI

PLANNING DEPARTMENT

Comment: The Department concurs with the draft statement and believes that the project will benefit the citizens of the County.

INDIVIDUALS

The following individuals reviewed and commented on the draft statement.

(1) ALEXANDER & BALDWIN, INC., PROPERTIES GROUP

Comment: The statement is comprehensive, factual, and well written. The firm is generally in favor of the proposed work.

(2) DAVID C. K. ENOMOTO

Comment: He supports the proposed shoreline project, but is concerned about the effect of the completed project on the wave action through the harbor entrance and on the shoreline north of the west breakwater.

Response: Although the proposed plan of improvements would have a significant effect upon the nearshore currents of the southwestern shoreline of Kahului Harbor, very little, if any changes are expected in the offshore currents of the deeper harbor waters or the waters outside the breakwaters. Therefore, the proposed work should have no influence on the erosion rate of areas to the north or the west breakwater.

c. Citizen Groups. Several meetings were held prior to the formal public meeting with representatives of the Maui Chamber of Commerce, the hotel owners, and Kahului Harbor officials. As a result of these meetings, the proposed plans were expanded from revetment of Kahului Beach Road only to include the restoration of the beaches along the southern shoreline.

JOHN A. BURNS  
GOVERNOR



RICHARD E. MARLAND, PH.D.  
INTERIM DIRECTOR

TELEPHONE NO.  
548-6815

STATE OF HAWAII  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL  
OFFICE OF THE GOVERNOR  
~~STATE OF HAWAII~~ 550 HALEKAUWILA STREET  
~~HONOLULU, HAWAII 96813~~ ROOM 301  
HONOLULU, HAWAII 96813

February 7, 1973

Mr. R. L. Nichols, Chief  
Engineering Division  
U. S. Army Corps of Engineers  
Building 96, Fort Armstrong  
Honolulu, Hawaii 96813

Dear Mr. Nichols:

Re: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PREVENTION  
AND MITIGATION OF SHORE DAMAGES, KAHULUI HARBOR, MAUI

As of this date, our Office has received ten (10) responses to  
the above indicated draft statement. (See the attached Summary Sheet.)  
The following three agencies had no comments to offer:

Board of Water Supply, City and County of Honolulu  
Planning Department, County of Hawaii  
Hawaiian Telephone Company

The State Department of Agriculture states that: "We have reviewed  
subject statement and foresee no adverse environmental effects on  
agriculture."

The organizations listed below supported the proposed project and  
had no comments and recommendations to make in regards to the draft statement.

State Department of Transportation  
Planning Department, County of Maui  
Alexander and Baldwin, Inc.

The State Department of Health commented on Occupational Health and  
Noise, Solid Waste, Air Pollution, and Water Pollution. We hope your staff  
will carefully review their memorandum of January 23, 1973, and in the  
final statement confirm compliance with the various State rules and  
regulations regarding the above four aspects.

The State Department of Planning and Economic Development indicated  
that the restored beach along the Maui Palms Hotel and the Hukilau Hotel  
should be accessible and convenient (parking) to the public because of  
the potential water recreational activities in the area. Our Office feels  
that public accessibility to the restored beach should be provided, possibly

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION - REGION SEVEN Nine  
HIGHWAY PROGRAMS OFFICE

450 Golden Gate Avenue, Box 36096, San Francisco, Calif. 94102

January 4, 1973

IN REPLY REFER TO:

930-00.8



Mr. R. L. Nichols  
Chief, Engineering Division  
Department of the Army  
Honolulu District, Corps of Engineers  
Building 96, Fort Armstrong  
Honolulu, Hawaii 96813

Dear Mr. Nichols:

We, together with our Hawaii Division Office, have reviewed the Draft Environmental Impact Statement for the Prevention and Mitigation of Shore Damages Project, Kahului Harbor, Island of Maui, Hawaii, and offer the following comments for your consideration:

1. Kahului Beach Road is a major segment of Federal-aid Secondary Route 340 on the Island of Maui.
2. Recent FHWA maintenance inspection of the Kahului-Waiehu Beach Road confirms shore erosion along certain segments of the Kahului Harbor shoreline adjacent to the highway. The proposed 350-foot revetment along Kahului Beach Road should preclude the future possibility of highway damage due to continued shoreline erosion.
3. All work performed along Kahului Beach Road should be coordinated with the Highways Division, Hawaii Department of Transportation, to assure safe and uninterrupted use of existing highway facilities.

We appreciate this opportunity to review the subject EIS.

Sincerely yours,

R. V. WHITE  
Director, Highway Programs Office

By   
MITCHELL TANNER  
Chief, Environmental Division



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
REGIONAL OFFICE  
50 FULTON STREET  
SAN FRANCISCO, CALIFORNIA 94102

OFFICE OF  
THE REGIONAL DIRECTOR

January 2, 1973

Your Reference: Draft Environmental Statement  
Prevention and Mitigation of  
Shore Damages, Kahului Harbor,  
Maui

Mr. R. L. Nichols  
Chief, Engineering Division  
Pacific Ocean Division  
Corps of Engineers  
Department of the Army  
Building 96, Fort Armstrong  
Honolulu, Hawaii 96813

Dear Mr. Nichols:

This will acknowledge receipt of the above referenced material.

A review will be made by this office to determine what, if any, problems may exist relative to the responsibilities of this department. Any comments, suggestions or questions that may arise will be sent to you within 30 days of this date. Should no reply be received by your office by that time, you may assume we have no comments to submit. We do request that any revisions or additional information that may be pertinent to this material be sent to us for review in the future.

Thank you for the opportunity to review the material.

Sincerely yours,

*Fernando E. C. De Baca*  
Fernando E. C. De Baca  
for Regional Director



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX  
100 CALIFORNIA STREET  
SAN FRANCISCO, CALIFORNIA 94111

JAN 29 1973

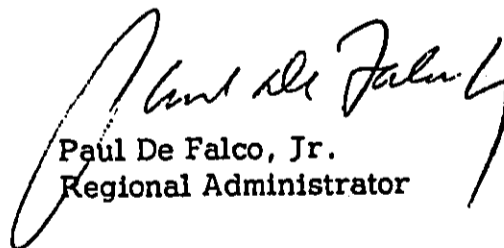
R. L. Nichols  
Chief, Engineering Division  
Pacific Ocean Division  
Corps of Engineers  
Building 96, Fort Armstrong  
Honolulu HI 96813

Dear Mr. Nichols:

This is in reply to your letter of December 18, 1972 requesting our review and comment on the draft environmental impact statement on Prevention and Mitigation of Shore Damage, Kahului Harbor, Maui, Hawaii.

The draft statement adequately discusses the basic environmental consequences of the proposed project. We have no further comments, but would appreciate receiving a copy of the final statement when it is submitted to the Council on Environmental Quality.

Sincerely,

A handwritten signature in dark ink, appearing to read "Paul De Falco, Jr.", written over the typed name and title.

Paul De Falco, Jr.  
Regional Administrator

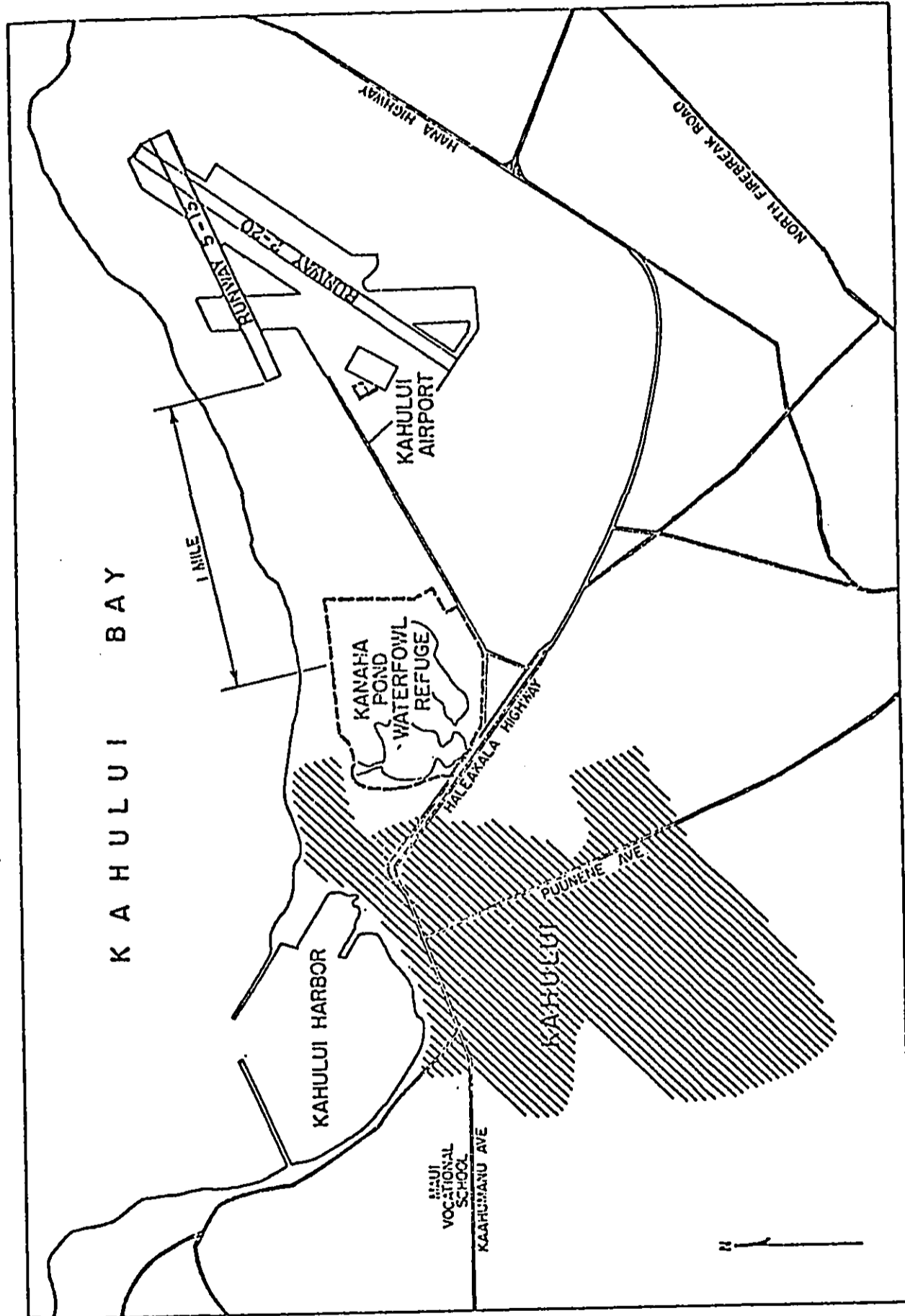


Figure 1. Kanahele Pond and adjacent areas.

Mr. R. S. Nichols  
Page 2  
February 8, 1973

refuge near Kahului Harbor. Kanaha Pond is a Registered  
National Natural Landmark.

Cordially,



Webster Otis  
Secretary's Field Representative

Attachment - map

cc: Director, Office of Environmental Project Review,  
USDI, w/cy Bureau comments  
Regional Director, NPS, San Francisco  
Regional Director, BOR, San Francisco  
Regional Director, BSF&W, Portland  
Director, Geological Survey, USDI



UNITED STATES  
DEPARTMENT OF THE INTERIOR

OFFICE OF THE SECRETARY

PACIFIC SOUTHWEST REGION

BOX 36098 • 450 GOLDEN GATE AVENUE

SAN FRANCISCO, CALIFORNIA 94102

(415) 556-8200

February 8, 1973

ER-72/1469

Mr. R. S. Nichols  
Chief, Engineering Division  
Corps of Engineers  
Pacific Ocean Division  
Building 96, Fort Armstrong  
Honolulu, Hawaii 96813

Dear Mr. Nichols:

This Department has reviewed the draft environmental statement for Prevention and Mitigation of Shore Damages, Kahului Harbor, Maui, Hawaii.

We suggest that the project description include groin lengths and bottom widths. The statement should indicate the source of beach restoration sand and describe the impact its removal will have on the environment.

The marine environment that will be destroyed by filling must be adequately assessed in the statement. The eroded rocks and gravel area that will be covered by sand for beach restoration now provides a specific habitat niche. Marine organisms in the area contribute to the life chain which, in turn, makes possible such activities as snorkeling and spear fishing. The final statement should include an assessment of the project effects on natural values.

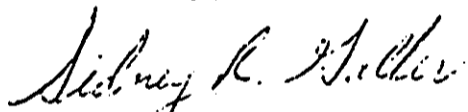
The final statement should document contact with the State Liaison Officer for Historic Preservation and include a copy of his comments concerning the effect of the undertaking upon historical and archeological resources, including sites which may be in the process of nomination to the National Register of Historic Places. The final statement should also describe any effect, however minimal, the project may have on Kanaha Pond, an important waterfowl

project area by sport fishermen be quantified, that additional evidence be presented to support the conclusion that the popular fishing areas will not be affected directly by the proposed project, and that consideration be given to expanding this section to include discussion of the likelihood that the popular sport fishing areas will be indirectly affected by the project.

In the section on Adverse Environmental Effects Which Cannot Be Avoided Should the Project be Implemented, it is stated that "Over the life of the project, repairs to the protective structures and some replenishment of the sand may be necessary." Some discussions of the expected frequency and magnitude of these reparative actions and some indication of their effect on the reestablishment of benthic organisms in the area should be provided.

We hope these comments will be of assistance to you in the preparation of the final statement.

Sincerely,



Sidney R. Galler  
Deputy Assistant Secretary  
for Environmental Affairs



THE ASSISTANT SECRETARY OF COMMERCE  
Washington, D.C. 20230

January 29, 1973

Mr. R. L. Nichols  
Chief, Engineering Division  
Pacific Ocean Division  
Corps of Engineers  
Building 96, Fort Armstrong  
Honolulu, Hawaii 96813

Dear Mr. Nichols:

The draft environmental impact statement for Prevention and Mitigation of Shore Damages, Kahului Harbor, Maui, Hawaii which accompanied your letter of December 18, 1972, has been received by the Department of Commerce for review and comment.

The Department of Commerce has reviewed the draft environmental statement and has the following comments to offer for your consideration.

In the section on Environmental Setting Without the Project, it is stated that "plans have been made by a private developer to replace (the 48-inch storm drain) with a new 72-inch line," and it is concluded that "the enlarged storm drain line will have no significant impact upon the environment beyond the existing conditions." We suggest that a discussion be included concerning the potential effects of the enlarged storm drain runoff on the proposed project and the conditions that will exist if the project is implemented.

In the section on Environmental Impact of the Proposed Project, it is stated that "Although the entire harbor area is used extensively by sport fishermen, the waters along the breakwaters and piers are the most popular areas, and these will not be directly affected by the project." We suggest that the magnitude of the use of the



DEPARTMENT OF TRANSPORTATION  
UNITED STATES COAST GUARD

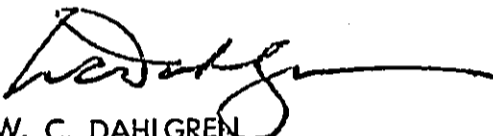
Address reply to:  
COMMANDER (op)  
Fourteenth Coast Guard District  
677 Ala Moana  
Honolulu, Hawaii 96813

11000  
Ser 37158  
8 JAN 1973

From: Commander, Fourteenth Coast Guard District  
To: Division Engineer, Pacific Ocean Division, Corps of Engineers  
Subj: Draft Environmental Statement, Kahului Harbor, Maui; comments  
concerning

Ref: (a) Your PODED-P ltr dtd 18 Dec 1972

1. In reply to reference (a), we have no comments to make concerning the environmental impact of the proposed project for prevention and mitigation of shore damage in Kahului Harbor, Maui, but appreciate the opportunity to do so.

  
W. C. DAHLGREN  
Chief of Staff

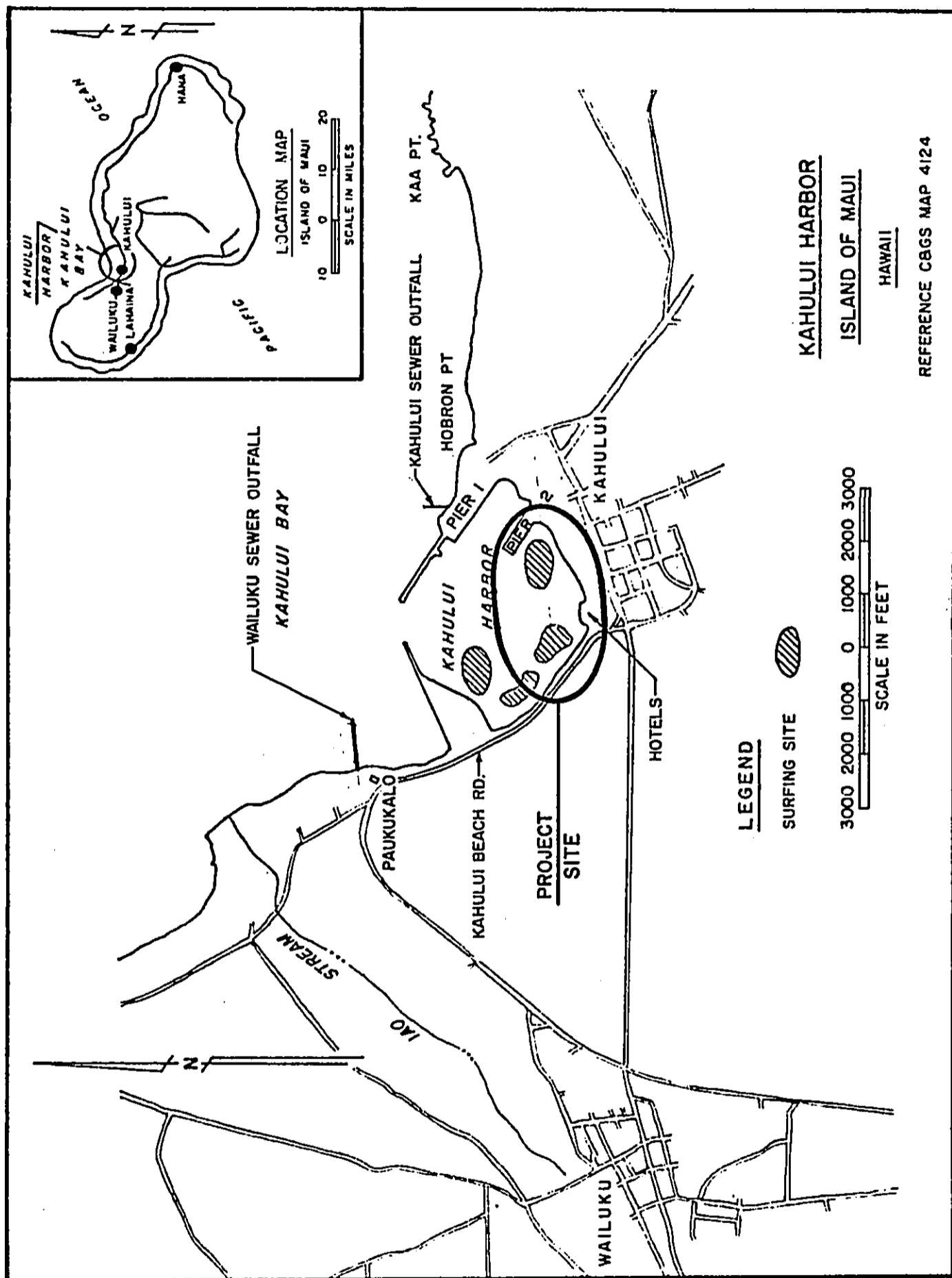


PLATE 2

KAHULUI HARBOR

ISLAND OF MAUI

HAWAII

REFERENCE CBGS MAP 4124

LEGEND

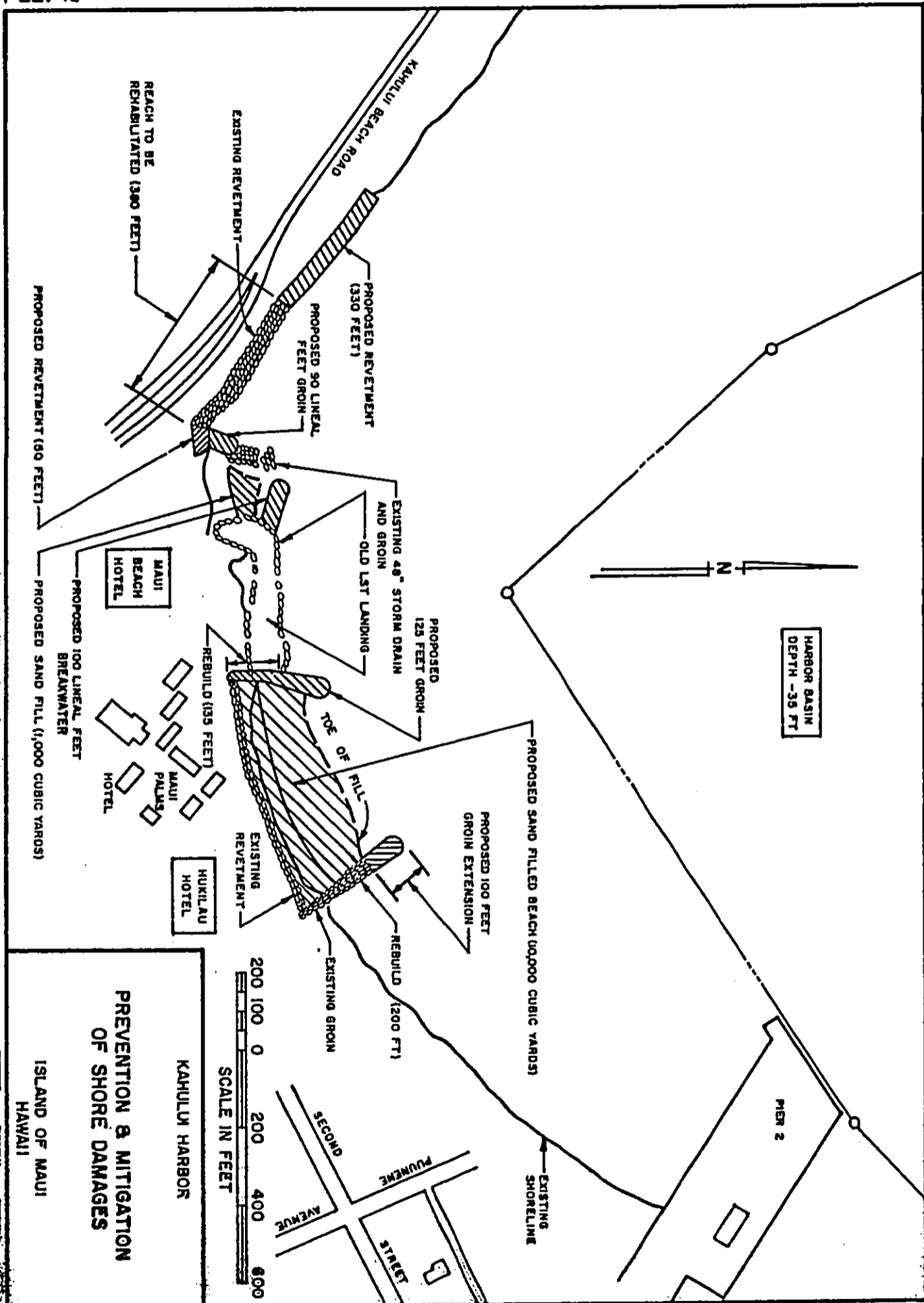
SURFING SITE

3000 2000 1000 0 1000 2000 3000  
SCALE IN FEET

LOCATION MAP

ISLAND OF MAUI

SCALE IN MILES



DAVID C. K. ENOMOTO  
432 NORTH WAKEA AVENUE  
KAHULUI, MAUI, HAWAII 96732  
PHONE 244-3288

ANOFF

KHOPF

January 15 1973

OFFICE OF ENVIROMENT QUALITY,  
HONOLULU HI.

Dear Sir,

please accept my short inquiry on the subject matter.

I do feel the improvement contemplated on the shoreline improvement fits in very well. I do know since the harbor was dredged the spoils area filled with coral, the small section extension to the west breakwater did created this erosion action. There is more high surf now in the harbor than before this project was completed.

I am a resident of 5'th increment HARBOR VIEW track, for 16 years. My feeling is that after this project is completed what will the renewed wave action through the entrance to the harbor be?. It may create more erosion on the North side of the West Breakwater caused by new current and tide movement. Therefore I am sure the Department have studied this problem of erosion.. of this area. The old shoreline was about 75 to 100 feet out from the present shoreline extendind to the Wailuku Sewer Outfall pipeline. I do hope this comments have some merit to the subject matter. I would appreciate a reply. Thank You,

Sincerely,

*David C. K. Enomoto*  
David C. K. Enomoto



ALEXANDER & BALDWIN, INC.

P. O. BOX 156

• KAHULUI, MAUI, HAWAII 96732 •

PHONE 877-5523

December 26, 1972

Environmental Resources Section  
Corps of Engineers  
U.S. Army Engineer Division,  
Pacific Ocean  
Building 96, Fort Armstrong  
Honolulu, HI 96813

Gentlemen:

KAHULUI HARBOR: Thank you for the opportunity to comment on the Draft Environmental Statement - Prevention and Mitigation of Shore Damages, KAHULUI HARBOR, MAUI, dated December 15, 1972.

We feel the report is comprehensive, factual, and well written. We agree with all conclusions drawn.

One minor correction you might wish to make - the Kahului Shopping Center referred to in the fourth paragraph, Page 3, should be the Kaahumanu Shopping Center.

Very truly yours,

PROPERTIES GROUP

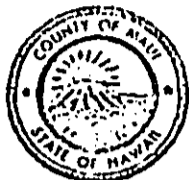
  
G. H. Ivey, Jr.  
MAUI MANAGER

GHI:rv

cc A&B Properties Group-Honolulu

**PLANNING COMMISSION**

Yoshikazu Matsui, Chairman  
G. Alan Freeland, Vice-Chairman  
Joseph Franco  
Kazuo Kage  
Michael Kimura  
Richard Mayer  
George Murashige  
Stanley Goshi, Ex-Officio  
Art Kalama, Ex-Officio



**COUNTY OF MAUI  
PLANNING DEPARTMENT**

200 S. HIGH STREET  
WAILUKU, MAUI, HAWAII 96793

January 31, 1973

Elmer F. Cravalho  
Mayor

**BOARD OF ADJUSTMENT  
& APPEALS**

Joseph S. Medeiros, Jr., Chairman  
Young Whee Chun, Vice-Chairman  
William Hong  
George Tamura  
Thomas Yagi

Howard Nakamura  
Planning Director

**MEMORANDUM**

TO: Dr. Richard E. Marland, Interim Director,  
Office of Environmental Quality Control

FROM: Howard K. Nakamura, Director of Planning  
*Howard K. Nakamura*

SUBJECT: Draft Environmental Impact Statement for the  
Prevention and Mitigation of Shore Damages,  
Kahului Harbor, Maui

On the basis of the information contained in the draft impact statement, this department concurs that no long-term adverse environmental effects are anticipated.

The proposed project will mitigate much of the shoreline erosion presently experienced in Kahului Harbor, and, as such, will be of benefit to the citizens of our County.

Thank you for the opportunity to comment on the draft statement.

JOHN A. BURNS  
GOVERNOR OF HAWAII



DIVISIONS:  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
P. O. BOX 521  
HONOLULU, HAWAII 96809

February 5, 1973

MEMORANDUM

TO: Dr. Richard E. Marland  
OEQC

FROM: Sunao Kido, Chairman and Member  
Board of Land and Natural Resources

SUBJECT: Comments on the Environmental Impact Statements

✓ Prevention and Mitigation of Shore Damages, Kahului Harbor, Maui

We note that this proposed plan of improvement for the southwest shoreline of Kahului Harbor, Maui, was developed at the request of the State of Hawaii. The project will enhance shore fishing and swimming opportunities in the Harbor.

We have no objections to the proposed project.

Construction of Highway Maintenance Baseyard, Pearl City, Oahu

This department has no objection to the proposed project as presented by the Department of Transportation.

BOARD OF LAND AND NATURAL RESOURCES

A handwritten signature in cursive script, reading "Sunao Kido".

SUNAO KIDO  
Chairman and Member



STATE OF  
HAWAII

DEPARTMENT OF PLANNING  
AND ECONOMIC DEVELOPMENT

P. O. BOX 2359 • HONOLULU, HAWAII 96804

February 1, 1973

JOHN A. BURNS  
Governor

SHELLEY M. MARK  
Director

EDWARD J. GREANEY, JR.  
Deputy Director

Ref. No. 8182

MEMORANDUM

TO: Dr. Richard E. Marland, Interim Director  
Office of Environmental Quality Control

FROM:

*Shelley M. Mark*  
Shelley M. Mark, Director

SUBJECT: Review of Environmental Impact Statement for Prevention and  
Mitigation of Shore Damages at Kahului Harbor, Maui.

We have reviewed the statement and have the following comments  
to offer.

It is a State policy to encourage the provision of adequate  
accesses to the shoreline and in particular to sandy beaches. We believe  
this concern should be addressed specifically to this project of beach  
improvement. Availability of parking spaces to accommodate beach users  
should also be part of this consideration.

In connection with the variety of water contact recreation  
activities in and around the harbor area we suggest continued consider-  
ation and concern for the highest possible water quality.

These are the major comments we have to offer on this draft  
statement. Thank you for the opportunity to review it.

JOHN A. BURNS  
GOVERNOR



STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
869 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813

IN REPLY REFER TO:  
ATP 8.2101

FUJIO MATSUDA  
DIRECTOR  
E. ALVEY WRIGHT  
DEPUTY DIRECTOR  
LAWRENCE F. O. CHAN  
DEPUTY DIRECTOR  
MUNNY Y. M. LEE  
DEPUTY DIRECTOR  
DOUGLAS S. SAKAMOTO  
DEPUTY DIRECTOR

January 23, 1973

MEMORANDUM

TO: DR. RICHARD E. MARLAND, INTERIM DIRECTOR  
OFFICE OF ENVIRONMENTAL QUALITY CONTROL

FROM: FUJIO MATSUDA, DIRECTOR OF TRANSPORTATION

SUBJECT: DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE PREVENTION  
AND MITIGATION OF SHORE DAMAGES, KAHULUI HARBOR, MAUI

We have reviewed the subject EIS and have no comments or objections to offer. We support the Corps' plan to prevent and mitigate the serious erosion problem existing in Kahului Harbor today.

*E. Alvey Wright*  
for FUJIO MATSUDA  
Director

Water Pollution

Special precautions should be taken to minimize the degree of turbidity caused by construction activities. Wastewater treatment facilities should be implemented if required.

*Walter B. Quisenberry, M.D.*  
Walter B. Quisenberry, M.D.

JOHN A. BURNS  
GOVERNOR OF HAWAII



WALTER B. QUISENBERRY, M.P.H., M.D.  
DIRECTOR OF HEALTH

WILBUR S. LUMMIS JR., M.S., M.D.  
DEPUTY DIRECTOR OF HEALTH

STATE OF HAWAII  
DEPARTMENT OF HEALTH  
P. O. BOX 3378  
HONOLULU, HAWAII 96801

January 23, 1973

To: Dr. Richard E. Marland, Interim Director  
Office of Environmental Quality Control

From: Director of Health

Subject: Draft Environmental Impact Statement for the Prevention and  
Mitigation of Shore Damages, Kahului Harbor, Maui

The following are comments relative to the draft Environmental  
Impact Statements:

Occupational Health and Noise

We do not anticipate any abnormal problems relating to the construction activity. Noise should be minimized by establishing work hours during the period from 6:00 a.m. to 6:00 p.m. and all activities should be conducted following health regulations relating to the workers.

Solid Waste

All solid waste and spoil material generated from site preparation and construction phases of the project should be removed and disposed of at an approved disposal site.

Air Pollution

Due to the prevailing onshore winds, the hotels and residents adjacent to the project area may be affected by the fugitive dust emissions. Therefore, dust control techniques should be enforced during the construction activities.

Public Health Regulation, Chapter 43, Air Pollution Control, includes regulations which curtail any fugitive dust emitting activities.

JOHN A. BURNS  
GOVERNOR



FREDERICK C. ERSKINE  
CHAIRMAN, BOARD OF AGRICULTURE

WILLIAM E. FERNANDES  
DEPUTY TO THE CHAIRMAN

STATE OF HAWAII  
DEPARTMENT OF AGRICULTURE  
1422 SO. KING STREET  
HONOLULU, HAWAII 96814

January 12, 1973

MEMORANDUM

TO: Dr. Richard E. Marland, Interim Director  
Office of Environmental Quality Control

SUBJECT: Draft Environmental Impact Statement for the Prevention  
and Mitigation of Shore Damages, Kahului Harbor, Maui

We have reviewed subject statement and foresee no adverse  
environmental effects on agriculture.

Thank you for the opportunity to comment on this matter.

*Frederick C. Erskine*  
Frederick C. Erskine  
Chairman, Board of Agriculture

Page 2  
February 7, 1973

through the hotels' properties. The restoration of sand and accessibility should provide an equal opportunity for use by both the hotel and Maui residents.

A letter received from Mr. David C. K. Enomoto raised the following question in regards to the affects of the project:

"My feeling is that after this project is completed what will the renewed wave action through the entrance to the harbor be? It may create more erosion on the North side of the West Breakwater caused by new current and tide movements."

This Office feels that these possibilities (alteration of wave action through the harbor's entrance and erosion on the north side of the West Breakwater) should be given full consideration and evaluation.

Our Office has no additional comments to offer. Thank you for the opportunity to review and process this draft environmental impact statement.

Sincerely,

  
RICHARD E. MARLAND  
Interim Director

Enclosures

STATEMENT OF FINDINGS  
KAHULUI HARBOR, MAUI, HAWAII  
PREVENTION AND MITIGATION OF SHORE DAMAGES

1. I have reviewed and evaluated, in the light of the overall public interest, the data and information concerning the proposed action, as well as the stated views of other interested agencies and the concerned public, relative to the various practical alternatives to prevent and mitigate shore damages attributable to Federal navigation works. The review was made to evaluate the effects of alternative shore protection and beach restoration plans on the environment and to select a plan which would meet the criteria set by Section 111 of the River and Harbor Act of 1968 as well as the needs and desires of the local populace and which would be compatible with the overall master plan for the Kahului area.

2. The possible consequences of these alternatives were evaluated based on environmental, social well-being, and economic effects, including the regional development of the area and the engineering feasibility of the project. Prior to evaluation of the different alternatives, the primary cause of the erosion problem and related shore damages was established. Analysis of the various factors involved in the littoral processes along the shoreline showed that the enlargement of the harbor basin under a Federal navigation project accelerated the erosion rate along the shoreline. Another important factor bearing on my review is the scarcity of beaches along the northern coast of Maui and consequently the need to retain or restore any existing beach. The guidelines of Section 122 of the River and Harbor Act of 1970 were followed in the analysis.

3. In evaluating the problem, I find that improvements to prevent further shoreline erosion and mitigate damage to the beach areas must be implemented in order to protect Kahului Beach Road from being undermined and also to restore the full use of the beaches fronting the existing hotels. Although the primary beneficiary of the beach restoration would be the hotel owners, I find this work to be justified because the Federal harbor enlargement project was the primary cause of the beach erosion problem. Furthermore, in accordance with the laws of the State of Hawaii, all land seaward of the high water mark belongs to the State. Also, in my coordination with both governmental and private agencies, I find that the general public has access to the beach areas.

4. Based on my evaluation, I find that the alternatives involving nonstructural methods such as doing nothing or implementing zoning and building codes to control development in the problem area would not resolve the erosion problem for the following reasons. First, they would not meet the objectives of the project to prevent and mitigate shore damages attributable to Federal navigation works. Eventual undermining of the Kahului Beach Road and the loss of valuable beach land can be expected if no action is taken. Second, the lands adjacent to the shoreline are already extensively developed. While new development might be controlled by building and zoning controls, the existing roadway and development would continue to be threatened.

5. Alternative plans considered during the formulation of the proposed plan ranged from shoreline protection only to construction of protective structures and beach restoration or a combination of these. The initial request for

Federal assistance resulted in a plan for about 1,000 linear feet of stone revetment along the Kahului Beach Road. Further study led to an expansion of the project to include beach restoration and protective structures for the replenished beach.

6. A preliminary plan which provided for revetment of Kahului Beach Road, beach restoration for the narrow beach between the LST landing and the existing eastern groin, and protective structures for the restored beach was initially coordinated with local governmental agencies and interested citizen groups. The plan was generally supported by those contacted although objections were raised about the lack of improvements for a small existing beach between the storm drain near the Maui Beach Hotel and the LST landing. Analysis of aerial photos revealed that a sand beach did exist in this location prior to the harbor enlargement, and the preliminary plan was again expanded to include beach restoration and protection for this section of shoreline.

7. The development of alternate plans was guided and limited by the specific nature of the authority for this study, that is, the prevention and mitigation of damages attributable to a Federally executed navigation project. One alternative considered at the request of Maui residents was the creation of additional sand beach to replace the existing LST landing. This request can be accomplished by strengthening and rebuilding the outer perimeter of the LST landing to serve as an offshore breakwater and connecting it to the proposed groins at either end. The nearshore area would be cleared of scattered rocks and debris so that sand could be placed along the entire length. Although construction of this additional beach is feasible, major erosion damage to the LST landing area is not evident. Since the LST landing was not constructed as part of a Federal navigation project, any proposal dealing with creation of new beach land in the LST area is beyond the scope of this authority.

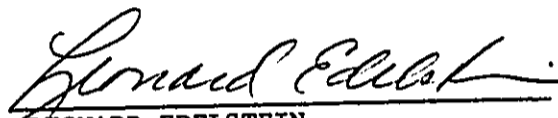
8. The alternatives were analyzed in accordance with the engineering, economic, and environmental criteria established for this study. The desires of the local populace were considered in arriving at the proposed plan. This plan provides for rehabilitation of 380 feet of existing revetment and the construction of 380 feet of new revetment along Kahului Beach Road, a 90-foot groin extending between the proposed revetment and the existing storm drain groin, a 100-linear-foot breakwater extending from the west end of the old LST landing, a 260-foot groin at the east end of the LST landing, a 100-foot extension to the existing eastern groin, and the placement of 11,000 cubic yards of sand.

9. I find that the proposed plan would best fulfill the requirements of the authorizing law and simultaneously meet the needs and desires of the people. Selection of this plan is based on the need to protect Kahului Beach Road from being undermined through the continuous erosion of the adjacent shoreline and to restore and retain eroded beach areas. As in any action, some adverse effects are unavoidable. The adverse effects associated with the proposed plan are primarily those resulting from physical construction. They include turbidity of water and loss of some fish and marine life due to the construction of the revetment, offshore breakwater, and groins, which will require minor excavation and the placement of about 15,000 cubic yards of stones and 11,000 cubic yards of sand. The completion of these works will alter the visual appearance of the

existing south and southwest shoreline of the harbor. The structural alterations have been kept to a minimum and are limited to those required to fulfill the purpose of mitigating the damages caused by the 1962 harbor enlargement and restoring the shoreline as nearly as possible to the pre-enlargement conditions. I find that these effects would not be sufficiently adverse to warrant modification of the proposed plan and that they would be offset by the benefits from the completed project. In addition to the proposed project, sand and stone will be required for future maintenance. I have conservatively estimated that about 3,000 cubic yards of sand and about 1,100 cubic yards of armor stone of varying sizes will be needed every 10 years for maintenance.


10. I find that the proposed project is based on careful analysis and evaluation of various practical alternative courses of action for achieving the stated objectives; that the adverse effects cannot be avoided by following reasonable alternative courses of action which would achieve the project purposes; that the adverse effects resulting from the proposed construction would be offset by the benefits from the completed works; that the proposed project is compatible with national policy, statutes, and administrative directives; and that on balance the total public interest will best be served by the implementation of this project.

2 March 1973  
Date

  
LEONARD EDELSTEIN  
Colonel, Corps of Engineers  
District Engineer

I concur in the District Engineer's findings.

2 March 1973  
Date

  
WILLIAM D. FALCK  
Colonel, Corps of Engineers  
Division Engineer

I concur in the preceding Statement of Findings.

FOR THE CHIEF OF ENGINEERS:

15 Oct 1973  
(Date)

J. W. Morris BG USA  
J. W. MORRIS  
Major General, USA  
Acting Director of Civil Works

STATEMENT OF FINDINGS  
KAHULUI HARBOR, MAUI, HAWAII  
PREVENTION AND MITIGATION OF SHORE DAMAGES

1. I have reviewed and evaluated, in the light of the overall public interest, the data and information concerning the proposed action, as well as the stated views of other interested agencies and the concerned public, relative to the various practical alternatives to prevent and mitigate shore damages attributable to Federal navigation works. The review was made to evaluate the effects of alternative shore protection and beach restoration plans on the environment and to select a plan which would meet the criteria set by Section 111 of the River and Harbor Act of 1968 as well as the needs and desires of the local populace and which would be compatible with the overall master plan for the Kahului area.
2. The possible consequences of these alternatives were evaluated based on environmental, social well-being, and economic effects, including the regional development of the area and the engineering feasibility of the project. Prior to evaluation of the different alternatives, the primary cause of the erosion problem and related shore damages was established. Analysis of the various factors involved in the littoral processes along the shoreline showed that the enlargement of the harbor basin under a Federal navigation project accelerated the erosion rate along the shoreline. Another important factor bearing on my review is the scarcity of beaches along the northern coast of Maui and consequently the need to retain or restore any existing beach. The guidelines of Section 122 of the River and Harbor Act of 1970 were followed in the analysis.
3. In evaluating the problem, I find that improvements to prevent further shoreline erosion and mitigate damage to the beach areas must be implemented in order to protect Kahului Beach Road from being undermined and also to restore the full use of the beaches fronting the existing hotels. Although the primary beneficiary of the beach restoration would be the hotel owners, I find this work to be justified because the Federal harbor enlargement project was the primary cause of the beach erosion problem. Furthermore, in accordance with the laws of the State of Hawaii, all land seaward of the high water mark belongs to the State. Also, in my coordination with both governmental and private agencies, I find that the general public has access to the beach areas.
4. Based on my evaluation, I find that the alternatives involving nonstructural methods such as doing nothing or implementing zoning and building codes to control development in the problem area would not resolve the erosion problem for the following reasons. First, they would not meet the objectives of the project to prevent and mitigate shore damages attributable to Federal navigation works. Eventual undermining of the Kahului Beach Road and the loss of valuable beach land can be expected if no action is taken. Second, the lands adjacent to the shoreline are already extensively developed. While new development might be controlled by building and zoning controls, the existing roadway and development would continue to be threatened.
5. Alternative plans considered during the formulation of the proposed plan ranged from shoreline protection only to construction of protective structures and beach restoration or a combination of these. The initial request for

Federal assistance resulted in a plan for about 1,000 linear feet of stone revetment along the Kahului Beach Road. Further study led to an expansion of the project to include beach restoration and protective structures for the replenished beach.

6. A preliminary plan which provided for revetment of Kahului Beach Road, beach restoration for the narrow beach between the LST landing and the existing eastern groin, and protective structures for the restored beach was initially coordinated with local governmental agencies and interested citizen groups. The plan was generally supported by those contacted although objections were raised about the lack of improvements for a small existing beach between the storm drain near the Maui Beach Hotel and the LST landing. Analysis of aerial photos revealed that a sand beach did exist in this location prior to the harbor enlargement, and the preliminary plan was again expanded to include beach restoration and protection for this section of shoreline.

7. The development of alternate plans was guided and limited by the specific nature of the authority for this study, that is, the prevention and mitigation of damages attributable to a Federally executed navigation project. One alternative considered at the request of Maui residents was the creation of additional sand beach to replace the existing LST landing. This request can be accomplished by strengthening and rebuilding the outer perimeter of the LST landing to serve as an offshore breakwater and connecting it to the proposed groins at either end. The nearshore area would be cleared of scattered rocks and debris so that sand could be placed along the entire length. Although construction of this additional beach is feasible, major erosion damage to the LST landing area is not evident. Since the LST landing was not constructed as part of a Federal navigation project, any proposal dealing with creation of new beach land in the LST area is beyond the scope of this authority.

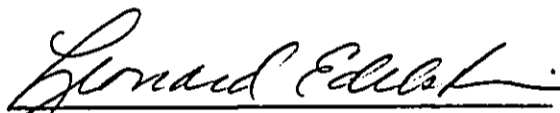
8. The alternatives were analyzed in accordance with the engineering, economic, and environmental criteria established for this study. The desires of the local populace were considered in arriving at the proposed plan. This plan provides for rehabilitation of 380 feet of existing revetment and the construction of 380 feet of new revetment along Kahului Beach Road, a 90-foot groin extending between the proposed revetment and the existing storm drain groin, a 100-linear-foot breakwater extending from the west end of the old LST landing, a 260-foot groin at the east end of the LST landing, a 100-foot extension to the existing eastern groin, and the placement of 11,000 cubic yards of sand.

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10. I find that the proposed project is based on careful analysis and evaluation of various practical alternative courses of action for achieving the stated objectives; that the adverse effects cannot be avoided by following reasonable alternative courses of action which would achieve the project purposes; that the adverse effects resulting from the proposed construction would be offset by the benefits from the completed works; that the proposed project is compatible with national policy, statutes, and administrative directives; and that on balance the total public interest will best be served by the implementation of this project.

2 March 1973  
Date

  
LEONARD EDELSTEIN  
Colonel, Corps of Engineers  
District Engineer

I concur in the District Engineer's findings.

2 March 1973  
Date

  
WILLIAM D. FALCK  
Colonel, Corps of Engineers  
Division Engineer

I concur in the preceding Statement of Findings.

FOR THE CHIEF OF ENGINEERS:

15 Oct 1973  
(Date)

J. W. Morris BG USA  
J. W. MORRIS  
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